

REMARKS

Claims 4 and 19-33 were previously cancelled. Accordingly, Claims 1-3 and 5-18 are pending. Accompanying this Amendment is an unexecuted 1.132 Declaration by Dr. Buwalda. An executed Declaration will follow shortly.

Rejection under 35 U.S.C. §103 over *Lanner* in View of *Tallberg* and *Buwalda*

Claims 1-3, 5-7, 9-15 and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Lanner et al.* (U.S. Patent No. 6,022,574, hereinafter "*Lanner*") in view of *Tallberg et al.* (U.S. Patent No. 5,824,798, hereinafter "*Tallberg*") and *Buwalda* ("Sheer Versatility" *Potato Business World* May/June 1998). (See August 11, 2008 Office Action, pages 2-3, paragraph 2.)

In order to prepare the snack foods of the present invention, genetically modified high amylopectin content potatoes are used to make potato flakes and/or potato granules. The potato flakes and potato granules are pieces from a whole potato and differ in composition from a raw potato only in their water content. The potato cells are predominantly still intact in these flakes and granules; and the starch is essentially still contained in these cells.

The potato flakes and/or potato granules are used to prepare dough. The dough is heated (i.e., cooked) upon which it expands to form the desired snack food. At least 20% by weight of the snack food is the high amylopectin potato flakes/granules. Surprisingly, as a result of using potato flakes/granules in which the starch comprises 95% or more amylopectin (rather than normal potatoes in which the starch comprises only about 80% amylopectin), the snack foods of the present invention are much more expanded after heating than snack foods of the prior art.

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Claim 1 has been amended so that 100% of the potato flakes and/or potato granules in the snack food is prepared from high amylopectin potatoes. Support for this amendment is found throughout the specification, including on page 11, lines 1-3; page 13, lines 15-16; page 14, lines 16-19; and page 21, lines 20-23.

The primary reference cited by the Examiner, *Lanner*, discloses a process for making a shaped snack product containing starch based flour. The Examiner concedes that *Lanner* 1) does not disclose potatoes with an amylopectin content of at least 95%; 2) does not disclose at least 20% by weight of a snack food being high amylopectin potatoes; 3) does not disclose greater expansion; and 4) does not disclose a genetically modified potato. (See August 11, 2008 Office Action, page 2, paragraph 2.)

In an attempt to rectify the deficiencies in the primary reference, the Examiner cites the secondary reference of *Tallberg* as disclosing high amylopectin potato and cites the secondary reference of *Buwalda* as disclosing that **isolated** amylopectin potato starch provides improved expansion properties in snack foods. The Examiner cannot even attempt to show that a reference discloses that amylopectin potato pieces increase expansion or at least 20% by weight of a snack food is high amylopectin potato pieces. Moreover, the Examiner would not be able to show that 100% of the potato pieces in the snack food are high amylopectin potato pieces.

Section 2143 of the M.P.E.P. provides guidelines to determine if a claimed invention is obvious in the wake of *KSR International Co. v. Teleflex, Inc.* (82 USPQ2d 1385 (2007)). There, rationales that may be used by an examiner to support a conclusion of obviousness are listed from A to G. In order for an examiner to conclude an invention is obvious under Rationales A-F, the results of the invention are required to be "predictable" in view of the prior art. Under Rationale G, there must be "...a finding that there was reasonable expectation of success." (See Examination Guidelines for Determining Obviousness under 35 U.S.C. § 103 in View of the

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Supreme Court Decision in *KSR International Co. v. Teleflex, Inc.* Federal Register, Vol. 72, No. 195, page 57534, col. 1, October 10, 2007.)

Accordingly, a proper rejection based on obviousness requires that, in view of the prior art, a skilled artisan would have had predicted or reasonably expected that the claimed invention would have been successful.

The present invention includes snack foods which contain potato pieces wherein all of the pieces are prepared from high amylopectin potatoes. The snack foods of the present invention surprisingly have increased expansion when heated *vis-à-vis* snack foods made from normal potato pieces, thereby yielding a useful product. That a useful product with increased expansion is obtained could not have been predicted, or reasonably expected, from prior art teachings. In fact, the prior art taught away from enhanced expansion of snack foods if produced from potato pieces prepared from high amylopectin potatoes, as discussed below.

Firstly, *Buwalda* only discusses isolated potato starch. *Buwalda* does **not** teach anything about high amylopectin potato pieces. In the Applicants' previous Amendment, a detailed discussion regarding the differences between isolated starch and potato pieces was provided. For the sake of convenience, the discussion is provided in a separate section below on page 10.

Secondly, *Buwalda* only discusses expansion properties with respect to starch coatings. In particular, the only sentence in which *Buwalda* discusses expansion properties at all follows: "In starch coatings, like for instance in snacks, amylopectin potato starch derivatives give noticeably good expansion properties" (at page 13, 3rd col., 1st paragraph, last sentence, of *Buwalda*). *Buwalda* does not discuss expansion properties when amylopectin starch is used as a component of the snack food dough. (See paragraph 6 of the Dr. Buwalda Declaration.)

Thirdly, as stated by Dr. Buwalda in paragraph 7 of his Declaration, the prior art taught that “the use of high amylopectin starch as substantially the sole base for snack products has always been regarded as unsatisfactory.” Dr. Buwalda further explains that “if the [high amylopectin] doughs expand at all, their texture is like ‘Styrofoam’, i.e., unpleasantly tough and not crisp. Most often, however, the expansion is insufficient and the resulting products are very (tooth breaking) hard.” This teaching is also discussed on the paragraph bridging pages 4 and 5 of the specification.

Fourthly, as stated by Dr. Buwalda in paragraph 8 of his Declaration, “knowledge of the properties of high amylopectin potato starch does not predict the properties of high amylopectin potato pieces.” As an example, Dr. Buwalda discusses the relationship between the viscosity of high amylopectin potato starch and the viscosity of normal potato starch *vis-à-vis* the relationship between the viscosity of high amylopectin potato pieces and the viscosity of normal potato pieces. In particular, Dr. Buwalda points out that the viscosity of high amylopectin potato starch is *half* that of the viscosity of normal potato starch; whereas, the viscosity of high amylopectin potato pieces is *twice* as great as the viscosity of normal potato pieces. (See also *Buwalda* page 12, 3rd col., 3rd full paragraph, 1st sentence.)

Fifthly, knowing that the viscosity of high amylopectin potato starch and the viscosity of high amylopectin potato starch pieces follow an opposing trend when compared to their normal potato counterparts, a skilled artisan would have thought that the opposing trend held for other properties. In particular, the skilled artisan would have inferred that if high amylopectin potato starch promoted expansion, then high amylopectin potato pieces would have deterred expansion. Additionally, the fact that it is known that waxy corn pieces deter expansion would have strengthened this inference. Thus, the **prior art teaches away from the invention.**

In paragraph 9 of his Declaration, Dr. Buwalda elaborates on such "teaching away":

In fact, if *any* prediction were to be made, since the viscosity trend of high amylopectin potato starch opposes the viscosity trend of high amylopectin potato pieces vis-à-vis their normal potato counterparts, it may be inferred that other properties of the starch versus the pieces would similarly show an opposing trend. For example, since high amylopectin potato starch showed an increased expansion as a coating, it may have been expected that high amylopectin potato pieces would have deterred expansion as a dough component. This may be particularly true since it is known that waxy corn pieces deter expansion.

A summary follows. *Buwalda* does not teach anything about high amylopectin potato pieces, let alone using high amylopectin pieces as a dough ingredient. *Buwalda* only discusses isolated starch as a coating. So considering *Buwalda* alone, a skilled artisan would not have been taught to use pieces of the *Tallberg* high amylopectin potatoes as a *Lanner* dough component. However, when considering the additional teaching in the art at the time of the present invention, a skilled artisan would have been taught away from using pieces of the high amylopectin potatoes of *Tallberg* in the doughs of *Lanner*. In particular, it would have been known that high amylopectin starch as substantially the sole base for snack products has always been regarded as unsatisfactory. Additionally, a skilled artisan would have considered that high amylopectin potato starch behaves in an opposite manner vis-à-vis high amylopectin potato pieces. More specifically, a skilled artisan would have known that the viscosity of high amylopectin potato starch and the viscosity of high amylopectin potato starch pieces follow an opposing trend when compared to their normal potato counterparts. Thus, a skilled artisan would have inferred that the opposing trend would hold regarding expansion properties. That is, if high amylopectin potato starch promoted expansion, then high amylopectin potato pieces would have deterred expansion.

Accordingly, considering the prior art as a whole, a skilled artisan would have been taught that the use of pieces of the high amylopectin potato of *Tallberg* as a dough component in the method of *Lanner* would have yielded a snack product having poor expansion properties. Thus, the prior art taught away from the present invention. If not teaching away, at the very least, considering the prior art, a skilled artisan would not have been able to predict, or reasonably expect, the expansion properties of high amylopectin potato pieces when used as a component of snack food.

Consequently, viewing the combination of references, the claims cannot be obvious in view of the cited prior art. Withdrawal of the rejection is respectfully requested.

Buwalda only teaches **isolated** potato starch

The author of *Buwalda*, i.e., Dr. Buwalda, corroborated that his article only addresses **isolated** starch in his declaration (filed on April 18, 2007). However, even without Dr. Buwalda's declaration, it is clear from the article itself that only isolated starch is addressed. In the article, starch is discussed as a chemical, which may be suspended or dissolved, and derivatized. A skilled artisan of starch chemistry would not refer to starch in such a manner if he were discussing starch which is still contained in potato pieces (e.g., flakes and granules). Also see page 11, the middle column, first paragraph where it is stated: "As potato starch is a mixture of amylopectin and amylose, solutions have a tendency to retrograde." This statement cannot relate to potato pieces which also contain 20 wt.% of non-starch components such as proteins, fibers, non-reducing sugars and amino acids. Also, see page 12, 1st column, 3rd paragraph, which discusses the "solubility" of starch in hot and cold water.

The fact that *Buwalda* only teaches isolated starch is critical. There are essential differences in the physical characteristics (e.g., rheological characteristics) between isolated potato starch and potato pieces, as would be known by a skilled artisan. For example, in potato pieces, starch is embedded in a matrix of other constituents; whereas, isolated starch is not embedded in a matrix. The other constituents include soluble proteins, cell walls and other soluble materials (e.g., salts, sugars, and amino acids). Being embedded in a matrix, the starch in the potato pieces is tied up and cannot behave in the same way isolated starch would behave.

Other Rejections under 35 U.S.C. §103 with *Lanner* as Primary Reference

Claim 8 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Lanner* in view of *Tallberg* and *Buwalda*, and further in view of Fazzolare *et al.* (U.S. Patent No. 4,834,996). (See page 3, paragraph 3, of the August 11, 2008 Office Action.)

Since the claims upon which Claim 8 depends are not obvious over *Lanner* in view of *Tallberg* and *Buwalda*, as discussed above, the further disclosure by Fazzolare *et al.* does not render Claim 8 obvious. Accordingly, Applicants request withdrawal of this obviousness rejection.

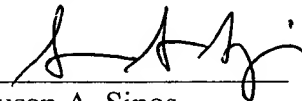
Claims 16 and 17 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Lanner* in view of *Tallberg* and *Buwalda* and further in view of Villagran *et al.* (U.S. Patent No. 6,544,580). (See August 11, 2008 Office Action, page 4, paragraph 4.)

Since the claims upon which Claims 16 and 17 depend are not obvious over *Lanner* in view of *Tallberg* and *Buwalda*, as discussed above, the further disclosure by Villagran *et al.* does not render Claims 16 and 17 obvious. Accordingly, Applicants request withdrawal of this obviousness rejection.

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Applicants respectfully submit that the application is now in condition for allowance, which action is earnestly solicited. If resolution of any remaining issue is required prior to allowance of this application, it is respectfully requested that the Examiner contact Applicants' undersigned attorney at the telephone number provided below.

Respectively submitted,



Susan A. Sipos
Registration No. 43,128
Attorney for Applicants

HOFFMANN & BARON, LLP
6900 Jericho Turnpike
Syosset, New York, 11791
(516) 822-3550
SAS
309995